

PRODUCT DATA

Position Reading Modules for Laser Transducers

Laser Metric Systems, Inc. (LMS) designed its first fringe counting system back in 1982. The PRM-001 was a digital up-down whole fringe counter with analog sub-fringe interpolation. It was designed for single-frequency lasers.

A fringe-count results from a displacement of one-half wavelength of laser light. For a HeNe laser this is nominally 0.316 micrometers (12.5 μ inches). To measure displacements smaller than one fringe, a sub-fringe system is needed. Analog sub-fringe systems suffer from drift and interpolator inaccuracy which limits their performance. Also, single-frequency laser interferometers can suffer from amplitude drift which affects interpolator accuracy.

Stabilized lasers are needed to make accurate and repeatable measurements over long ranges. Two-frequency lasers, such as Agilent's HP5517B, provide for the highest fringe counting accuracy.

The PRM-004 series is designed for two-frequency lasers. They provide continuous readings of position by accurately measuring the Doppler-frequency, or equivalently, phase-change of

transducer signals. These systems use our proprietary all-digital approach to phase sensing. By using an *all-digital method*, long-term accuracy and stability is guaranteed.



Specifications

	PRM-004-ISA	PRM-004-PCI
Measurement Range	+/- 2.65m	+/-5.3 m
Tracking Velocity	3 m/sec	3 m/sec
Resolution*	0.1nano-m	0.1 nano-m
Interface Data Rate	500 kB/s	132 MB/s
Bus Interface	ISA	PCI
List Price	\$1,295	\$1,495

*At 10 KHz update rate, better at lower rates (as small as 10^{-12} m) .

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